REMARKS

The Office Action indicated that the subject matter of claim 9 was allowed. Claims 30-34 were rejected under 35 USC § 101 on the grounds that there was no functional interrelationship between the information on the disc. Accordingly, claim 30 has been amended to provide the desired functional interrelationship to meet the requirements of 35 USC § 101.

The Office Action rejected claims 27-28 and 30-37 over the *Nonomura et al.* US Patent No. 5,915,067. This application was filed on August 19, 1996 and the present application is entitled to a priority date of August 12, 1996. We are currently preparing a certified English translation of our priority document which should moot the '067 patent as a prior art reference.

The Office Action further rejected claims 27-28 and 30-37 as being completely anticipated by the *Taira et al.* US Patent No. 5,636,200.

The present invention can be implemented in the form of an optical disc, such as a DVD, on which a video title or titles are recorded. As is known in the art, there are reproduction controls that have been implemented that include branching, such as interactive branching, in order to conserve space on the disc and to permit a video object (VOB) to be accessed or used in more than one reproduction arrangement. To achieve such reproduction controls in a DVD, each work or title is composed of basically a data body and a piece of route information. Conventional CDs generally comprise a data body while the increased storage capacity of the DVD permits the further utilization of a hierarchy of specific route information. DVDs, however, also have functions that are required to be compatible with existing CD methods. For example, AV (Audio-Visual) functions are required to be compatible with existing CD reproduction methods. Such AV functions can include, for example, a search function that enables a user to directly input a chapter number, song number or expected reproduction time

and by doing so instantly receive reproduction of the desired data. Additionally, an AV function can have a feedback function which displays a chapter number, song number, and or present reproduction time to give the user a real-time feedback showing what part of the data is presently being reproduced with the corresponding reproduction time and chapter number being constantly updated as the reproduction of the disc progresses. These functions are quite familiar to anyone who has experienced the operation of a CD in a CD player.

Referring to Figure 1 of our present invention, a schematic of a DVD can be played and implemented in a number of different patterns. Depending on the particular pattern, the AV functions can be performed on some works recorded on a DVD and not on others. Information that instructs the reproduction apparatus to branch can be scattered at various locations on an optical disc. As a result, a substantial amount of time can be utilized by the reproduction apparatus in which to judge whether any AV functions are available for work recorded on the disc.

Given this particular environment, the present invention provides a hierarchy control information to improve the reproduction of AV functions on a DV disc. As such, the AV functions can be formed appropriately on a work that has only one piece of information which does not include a branch, while in contrast the AV functions cannot be performed appropriately on a work that has a plurality of pieces of route information containing one or more branches. The branch status management information, which indicates for each title whether a branch during its reproduction is possible, enables the reproduction apparatus to judge whether the AV functions are available for a work recorded on an optical disc immediately after an optical disc is inserted into the reproduction apparatus. Basically, this unique control information can be provided at a higher level than the control information imbedded with the VOBs in the data

body. By incorporating such control information at this management level, it permits an editor to appropriately arrange reproduction of multiple titles in a DVD and enables the reproduction apparatus to judge whether AV functions are available immediately after the optical disc is inserted into the reproduction apparatus. As a result, AV functions with a DVD empowered with the present invention can function as swiftly as the existing CD reproduction methods.

It is important to appreciate that functions such as branching at a lower working level is known, for example, in the control information in a PGC format which can exist in the data structure of a disc based on a ISO-9660 standard.

As noted in the *Tiara et al.* reference, Figure 12 represents a schematic diagram showing a file access process of the data structure of a standard ISO-9660 structure shown in Figure 1. See Column 6, lines 63-64.

Thus, when the reproduction apparatus implements the program shown in Figure 13, one of the first steps that is utilized after reading the PVD table is to determine whether the disc is based on the ISO-9660 standard. Under this ISO-9660 standard, one program cell can be shared with a plurality of program chains to thereby save the requirements of replicating the same data redundantly on the optical disc, but does not teach management information as defined in our claims. One of the other features of the *Tiara et al.* reference is multiplexing spare management information repetitively on the optical disc.

The Office Action contended that the route information could be defined in the program chain information or by the user with reference to Figure 24.

Figure 24 actually is a representation of an angle mode that enables alternative camera views to be selected by the user with reproduction governed by the particular selected branch information defined in the (SCINFO) which is the program chain control information.

Implementation of a multi-angle reproduction of program cells can be seen with regards to Figures 29 and 18 of the *Tiara et al.* reference with the angle block being a group of program cells that are selectively reproduced at the same time on the same time access. The user can then select an angle number so the program cell corresponding to the angle number can be reproduced. See Column 12, lines 1-16.

As mentioned above, the ability to provide branching, whether designated as an angle number or otherwise, has been known and the present invention does not purport to be a new way of providing such branching. Rather, the present invention addresses an improvement in providing a highly efficient reproduction method to accommodate the larger storage capabilities of DVDs by providing a unique reproduction information that actually indicates the status of each one of a title group so that the reproduction apparatus can save time in determining whether the sequence of reproduction of a title group can be varied through branching or whether it cannot be branched without being required to search through the entire audio and video information associated with the title group. The Office Action attempts to address the control information that would be at the VOB or PGC level which can be set for a particular branch instruction by the editor or to make options available to the user with in fact the higher level reproduction management information or disc reproduction management information that is directed to define a branch status to indicate for each title whether a branch during its reproduction is possible. Thus, there appears to be confusion in interpreting the language of our present claims which is directed to a higher hierarchy level of determining the existence of branch capability as opposed to the actual control information implementing a branch in the reproduction of the Audio-Visual work. Claim 30 has been amended to emphasize this

hierarchal structure while also addressing the statutory subject matter of program information stored in a recording medium.

In summary, the *Tiara et al.* reference simply discloses a conventional optical disc in which route information is recorded which can also be replicated in the titles of the present invention. The route information disclosed, however, is at the level of a PGC information which can include, for example, branch information (BCINFO in Figure 23) indicating branches to a plurality of program cells and information (SCINFO in Figure 24) which indicates a reproduction order of the cells. Thus, a reproduction route can be indicated by a series of cells which are a continuous reproduction section. The SCINFO has angle mode information that can indicate for each reproduction section constituting a reproduction route whether the reproduction section belongs to a multi-angle block and indicates at which of the start, middle and end of a multi-angle block the reproduction section is located. At a higher level of management information, however, the teachings of the *Tiara et al.* reference does not indicate, for each title defined by one or more pieces of route information, whether that title includes branch information. The reproduction apparatus does not have a ready reference and guide to expedite its capabilities of processing and providing the desired Audio-Video information.

It should be appreciated that the *Tiara et al.* reference does not provide the same advantages in both the property and structure of information that can be achieved and implemented by an editor with our invention, but rather simply provides an implementation of the ISO-9660 standard.

These features are clearly shown, for example, in claim 27 which defines reproduction information for indicating the status of each of the title groups, see Figure 14 of our disclosure, that is not set forth or disclosed in the *Tiara et al.* reference. These same advantageous features

are further set forth in claim 30 and its dependent claims. As a result, a reproduction apparatus utilizing and reproducing the optical disc of claim 30 can judge when there is a request to execute one of the certain functions whether such a function is allowed based on the read disc reproduction information at a hierarchy management level without having to implement, read and determine branching information at a PGC level.

When fully appreciating the significant difference in which the present invention is directed to over that of the cited art, it is believed that the rejection of these claims should be reconsidered and an early notification of allowance provided.

If the Examiner believes that a telephone interview will help further the prosecution of this case, he is respectfully requested to contact the undersigned attorney at the listed telephone number.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on November 8, 2004.

By: Sharon Farnus

Signature

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Very truly yours,

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